A List of the Currently Pending Claims

1-19. (Canceled)

20. (Currently amended) A method for removing etching and resist material from a multi-level substrate, comprising the steps of:

(a) forming a photoresist layer on a substrate level comprising a metal;

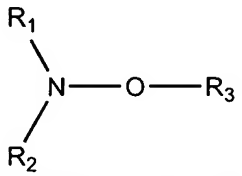
(b) exposing a portion of the photoresist layer, leaving a portion of the photoresist layer unexposed, and removing unreacted photoresist so that a resist pattern is formed;

(c) etching at least a portion of the substrate, using the resist pattern as a mask; and

(d) contacting the etched substrate with a cleaning composition at a temperature of between about room temperature and 100°C, to remove the resist pattern and etching residue from the etched substrate,

wherein the cleaning composition comprises:

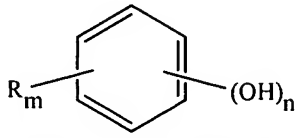
(~~a~~ 1) from about 5% to 50% by weight of hydroxylamine or a derivative thereof having a general formula of:



wherein R_1, R_2, and R_3 are independently hydrogen; ~~a hydroxyl group~~; a C_1-C_6 straight, branched or cyclo alkyl, alkenyl, or alkynyl group; an acyl group; a straight or branched alkoxy group, amidyl group, carboxyl group, alkoxyalkyl group, alkylamino group, alkylsulfonyl group, or sulfonic acid group; or a salt thereof;

(~~b~~ 2) from about 10% to 80% by weight of at least one organic solvent ~~miscible with the hydroxylamine or the hydroxylamine derivative~~ selected from the group consisting of dimethylsulfoxide, N-methyl-2-pyrrolidinone, N,N-dimethylpropanamide, N,N-dimethylformamide, ethylene glycol, ethylene glycol alkyl ether, diethylene glycol alkyl ether, triethylene glycol alkyl ether, propylene glycol, propylene glycol alkyl ether, dipropylene glycol alkyl ether, tripropylene glycol alkyl ether, N-substituted pyrrolidone, or mixture thereof;

(e 3) from about 5% to 30% by weight of an aromatic hydroxy-functional compound having a general formula of:



wherein n=1-4, m=2-5 and each R is independently hydrogen; a C_1-C_6 straight, branched or cyclo alkyl, alkenyl, or alkynyl group; an acyl group; a straight or branched alkoxy group, amidyl group, carboxyl group, alkoxyalkyl group, alkylamino group, alkylsulfonyl group, or sulfonic acid group; or a salt thereof; and

(~~d~~ 4) water.

21. (Previously Presented) The method of claim 20, wherein the hydroxylamine or derivative thereof comprises hydroxylamine, which is added as a 50% aqueous solution.

22. (Previously Presented) The method of claim 20, wherein the composition comprises more than one organic solvent.

23. (Currently amended) The method of claim 22, wherein:

~~(a)~~ the hydroxylamine or derivative thereof comprises hydroxylamine or an alkyl or carboxyl substituted hydroxylamine derivative ~~;~~

~~(b) the more than one organic solvent comprises:~~

~~(1) an alkanolamine selected from the group consisting of monoethanolamine, diethanolamine, triethanolamine, tert-butyldiethanolamine, isopropanolamine, 2-amino-1-propanol, 3-amino-1-propanol, isobutanolamine, 2-amino-2-ethoxy-propanol, and diglycolamine; and~~

~~(2) a non-amine solvent selected from the group consisting of dimethylsulfoxide, N-methyl-2-pyrrolidinone, N,N-dimethylpropanamide, N,N-dimethylformamide, ethylene glycol, ethylene glycol alkyl ether, diethylene glycol alkyl ether, triethylene glycol alkyl ether, propylene glycol, propylene glycol alkyl ether, dipropylene glycol alkyl ether, tripropylene glycol alkyl ether, and N-substituted pyrrolidone; and~~

~~(c) the aromatic hydroxy-functional compound comprises a dihydroxybenzene~~.

24-26 (Canceled)

27. (Previously Presented) The method of claim 23, wherein the hydroxylamine or derivative thereof comprises hydroxylamine.

28. (Canceled)

29. (Previously Presented) The method of claim 23, wherein the aromatic hydroxy-functional compound comprises at least one of 1,2-dihydroxy-4-t-butylbenzene and 1,2-dihydroxybenzene.

30. (Previously Presented) The method of claim 26, wherein the aromatic hydroxy-functional compound comprises at least one of 1,2-dihydroxy-4-t-butylbenzene and 1,2-dihydroxybenzene.

31. (Previously Presented) The method of claim 28, wherein the aromatic hydroxy-functional compound comprises at least one of 1,2-dihydroxy-4-t-butylbenzene and 1,2-dihydroxybenzene.

32. (Canceled)

33. (Previously Presented) The method of claim 20, wherein the contacting of the etched substrate with the cleaning composition is performed for about 2 to 60 minutes.

34. (Previously Presented) The method of claim 33, wherein the contacting of the etched substrate with the cleaning composition is a two step process, the first step comprising contacting for about 30 minutes at a temperature of about 65°C, and the second step comprising contacting for about 10 minutes at a temperature from about 80-85°C.

35. (Currently amended) A method for removing etching and resist material from a multi-level substrate, comprising the steps of:

(a) forming a photoresist layer on a substrate level comprising a metal;

(b) exposing a portion of the photoresist layer, leaving a portion of the photoresist layer unexposed, and removing unreacted photoresist so that a resist pattern is formed;

(c) etching at least a portion of the substrate, using the resist pattern as a mask; and

(d) contacting the etched substrate with a cleaning composition at a temperature of between about room temperature and 100°C, to remove the resist pattern and etching residue from the etched substrate,

wherein the cleaning composition consists essentially of:

(1) ~~about 17.5 parts of~~ from about 5% to about 50% by weight of hydroxylamine;

(2) ~~about 27 parts of an alkanolamine solvent~~ from 10 to about 80 % by weight of a solvent selected from the group consisting of dimethylsulfoxide, N-methyl-2-pyrrolidinone, N,N-dimethylpropanamide, N,N-dimethylformamide, ethylene glycol, ethylene glycol alkyl ether, diethylene glycol alkyl ether, triethylene glycol alkyl ether, propylene glycol, propylene glycol alkyl ether, dipropylene glycol alkyl ether, tripropylene glycol alkyl ether, N-substituted pyrrolidone, or mixture thereof;

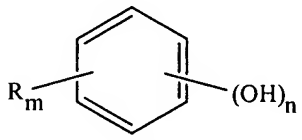
~~(3) about 5 parts of 1,2-dihydroxybenzene;~~

~~(4) about 33 parts of dimethylsulfoxide solvent; and~~

~~(5) from about 17.5 to about 37.5 parts~~ (3) water

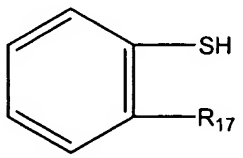
(4) from about 5% to 30% by weight of one or more chelating agent(s) comprising:

(i) one or more hydroxy-functional compounds of formula II:



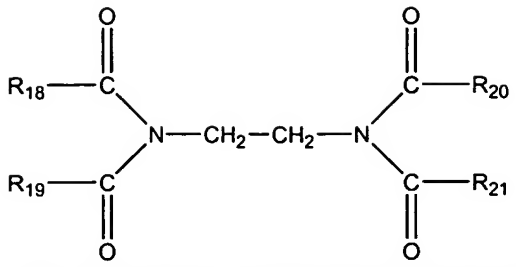
wherein n=1-4, m=2-5 and each R is independently hydrogen; a C_1-C_6 straight, branched or cyclo alkyl, alkenyl, or alkynyl group; an acyl group; a straight or branched alkoxy group, amidyl group, carboxyl group, alkoxyalkyl group, alkylamino group, alkylsulfonyl group, or sulfonic acid group; or a salt thereof;

(ii) thiophenol, a derivative thereof, or both, each of formula III:



wherein R_{17} is OH or COOH;

(iii) an ethylene diamine tetracarboxylic acid, a derivative thereof, or mixture thereof, each of formula IV:



wherein R_{18}, R_{19}, R_{20} and R_{21} can individually be H or NH_4; and

(iv) one or nore alkyl ammonium hydroxides of the formula V, (R_{11} R_{12} R_{13} R_{14})NOH, wherein R_{11}, R_{12}, R_{13}, and R_{14} are the same or different and comprise alkyl groups having from 1 to 5 carbon atoms; and

(d) water.

36. (Previously Presented) The method of claim 35, wherein the contacting of the etched substrate with the cleaning composition is performed for about 2 to 60 minutes.

37. (Previously Presented) The method of claim 36, wherein the contacting of the etched substrate with the cleaning composition is a two step process, the first step comprising contacting for about 30 minutes at a temperature of about 65°C, and the second step comprising contacting for about 10 minutes at a temperature from about 80-85°C.

38-40. (Canceled)

41. (Previously Presented) The method of claim 35, wherein the substrate layer comprises titanium.

42. (Previously Presented) The method of claim 35, wherein the substrate layer comprises aluminum.

43. (Previously Presented) The method of claim 35, wherein the substrate layer comprises tungsten.

44. (Previously Presented) The method of claim 35, further comprising ashing the resist and etching residue after the step of etching.

45. (Previously Presented) The method of claim 44, wherein the substrate layer comprises titanium.

46. (Previously Presented) The method of claim 44, wherein the substrate layer comprises aluminum.

47. (Previously Presented) The method of claim 44, wherein the substrate layer comprises tungsten.

48.(New) A method for removing etching and resist material from a multi-level substrate, comprising the steps of:

(a) forming a photoresist layer on a substrate level comprising a metal;

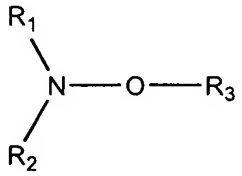
(b) exposing a portion of the photoresist layer, leaving a portion of the photoresist layer unexposed, and removing unreacted photoresist so that a resist pattern is formed;

(c) etching at least a portion of the substrate, using the resist pattern as a mask; and

(d) contacting the etched substrate with a cleaning composition at a temperature of between room temperature and 100°C, to remove the resist pattern and etching residue from the etched substrate,

wherein the cleaning composition consists essentially of:

(1) from about 5% to 50% by weight of hydroxylamine or a derivative thereof having a general formula of:



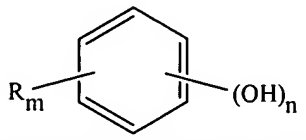
wherein R_1, R_2, and R_3 are independently hydrogen; a C_1-C_6 straight, branched or cyclo alkyl, alkenyl, or alkynyl group; an acyl group; a straight or branched alkoxy group, amidyl group, carboxyl group, alkoxyalkyl group, alkylamino group, alkylsulfonyl group, or sulfonic acid group; or a salt thereof;

(2) from 10 to about 80 % by weight of a solvent selected from the group consisting of dimethylsulfoxide, N-methyl-2-pyrrolidinone, N,N-dimethylpropanamide, N,N-dimethylformamide, ethylene glycol, ethylene glycol alkyl ether, diethylene glycol alkyl ether, triethylene glycol alkyl ether, propylene glycol, propylene glycol alkyl ether, dipropylene glycol alkyl ether, tripropylene glycol alkyl ether, or N-substituted pyrrolidone;

(3) water; and

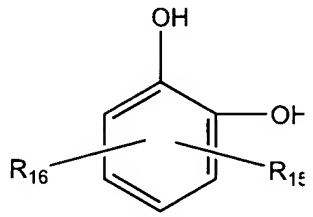
(4) from about 5% to 30% by weight of one or more chelating agent(s) comprising:

(i) one or more hydroxy-functional compounds of formula II:



wherein n=1-4, m=2-5 and each R is independently hydrogen; a C_1-C_6 straight, branched or cyclo alkyl, alkenyl, or alkynyl group; an acyl group; a straight or branched alkoxy group, amidyl group, carboxyl group, alkoxyalkyl group, alkylamino group, alkylsulfonyl group, or sulfonic acid group; or a salt thereof.

49.(New) The method of claim 48, wherein the cleaning composition comprises from 5% to 30% by weight of one or more chelating agent(s) of formula



wherein R_{15} and R_{16} are independently H, OH, COOH, or an alkyl group.

50. (New) The method of claim 48, wherein the hydroxylamine or derivative thereof comprises hydroxylamine or an alkyl or carboxyl substituted hydroxylamine derivative.

51.(New) The method of claim 48, wherein the cleaning composition comprises from 10% to 80% by weight of dimethyl sulfoxide, n-methyl-2-pyrrolidinone, N,N-dimethylpropanamide, or N,N-diethylformamide.